Pre-AP Geometry Triangle Congruence

1. What is your name?

There is a HUGE difference in geometry between *can be* congruent and *must be* congruent. We don't say two shapes are congruent unless they *must be* congruent. *Can be* congruent is insufficient evidence to say that the two shapes are congruent.

By the definition of congruent triangles, two triangles must be congruent. As you found out when you completed your proofs this can be kind of monotonous. They are long, very long, and can hard to keep organized.

Today, we are going to investigate some "shortcuts" and inductively which will produce triangles that must be congruent and and which only can be congruent.

Go unit 4 on the class webpage (http://watertowngeometry.wikispaces.com/Unit+4). Please note we are using the wiki and not the textbook. Find the document called CONGRNCE.gsp and download it.

1. Click on the the button labeled SSS. You can adjust the angles of the second triangle, but the side lengths must bet the same as the first triangle. When drag the angles of the second triangle, can you make a second triangle that is not congruent to the first triangle? That is must the second triangle be congruent to the first triangle?

2. Click on the the button labeled SSA. You can adjust the angles of the second triangle, but the side lengths must bet the same as the first triangle. When drag the angles of the second triangle, can you make a second triangle that is not congruent to the first triangle? That is must the second triangle be congruent to the first triangle?

3. Click on the the button labeled SAS. You can adjust the angles of the second triangle, but the side lengths must bet the same as the first triangle. When drag the angles of the second triangle, can you make a second triangle that is not congruent to the first triangle? That is must the second triangle be congruent to the first triangle?

4. Click on the the button labeled ASA. You can adjust the angles of the second triangle, but the side lengths must bet the same as the first triangle. When drag the angles of the second triangle, can you make a second triangle that is not congruent to the first triangle? That is must the second triangle be congruent to the first triangle?

5. Click on the the button labeled AAS. You can adjust the angles of the second triangle, but the side lengths must bet the same as the first triangle. When drag the angles of the second triangle, can you make a second triangle that is not congruent to the first triangle? That is must the second triangle be congruent to the first triangle?

6. Click on the the button labeled AAA. You can adjust the angles of the second triangle, but the side lengths must bet the same as the first triangle. When drag the angles of the second triangle, can you make a second triangle that is not congruent to the first triangle? That is must the second triangle be congruent to the first triangle?

7. Now summarize. Which combinations produced triangles that must be congruent?